

A SOLUTION AHEAD



# glass-lined vessels

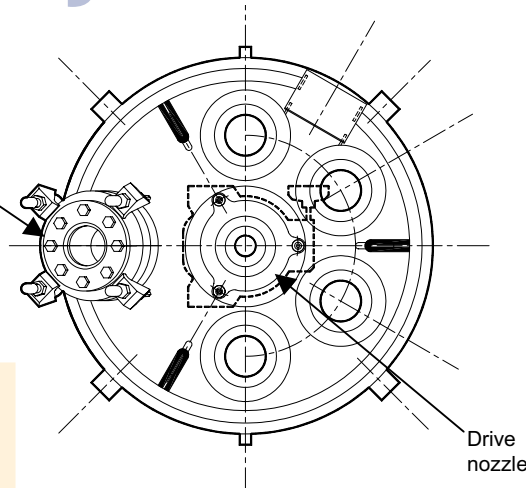
REACTORS, STORAGE TANKS,  
NUTSCHE FILTERS, COLUMNS



# CTJ reactors

standard sizes\*.....

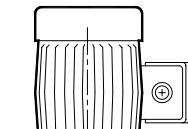
Handhole with sight glass



## CTJ SERIES

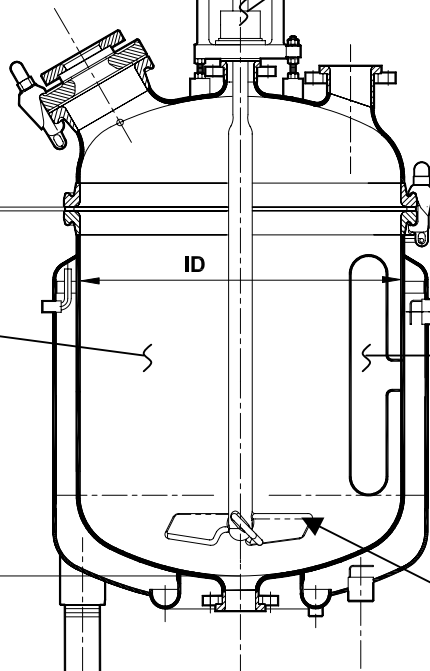
- Clamped or flanged-top reactors with removable top head
- Jacket options include conventional, HemiCoil® (split-pipe coil) or full conventional to the flange on bolted designs
- Designed for today's cleanability demands
- Guaranteed plug free
- Volumes from 2 to 2000 gallons
- Pressures from full vacuum to 90/150 psig
- Temperatures from -20°F to 500°F

Drive nozzle



Helical gear drive - single speed or variable speed

Double mechanical seal, dry or lubricated



Corrosion resistant 3009 glass interior

Optional OptiMix® wall-mounted baffle

Pitched blade turbine agitator

Legs with feet

Model	Dimensions ID (in)	H (in)	Motor (HP)
CTJ-5	13 <sup>1</sup> / <sub>4</sub>	9 <sup>3</sup> / <sub>4</sub>	1
CTJ-10	13 <sup>1</sup> / <sub>4</sub>	16 <sup>3</sup> / <sub>4</sub>	1
CTJ-20	19 <sup>1</sup> / <sub>4</sub>	19 <sup>5</sup> / <sub>16</sub>	1.5
CTJ-30	19 <sup>1</sup> / <sub>4</sub>	27 <sup>3</sup> / <sub>16</sub>	1.5
CTJ-50	22 <sup>7</sup> / <sub>8</sub>	28	2
CTJ-100	32	36 <sup>1</sup> / <sub>4</sub>	3
CTJ-200	38 <sup>1</sup> / <sub>4</sub>	45 <sup>1</sup> / <sub>2</sub>	3
CTJ-300	48	49 <sup>1</sup> / <sub>4</sub>	5
CTJ-500	53 <sup>1</sup> / <sub>4</sub>	64 <sup>1</sup> / <sub>4</sub>	5
CTJ-750	59 <sup>5</sup> / <sub>8</sub>	76 <sup>1</sup> / <sub>4</sub>	7.5

## OptiMix®

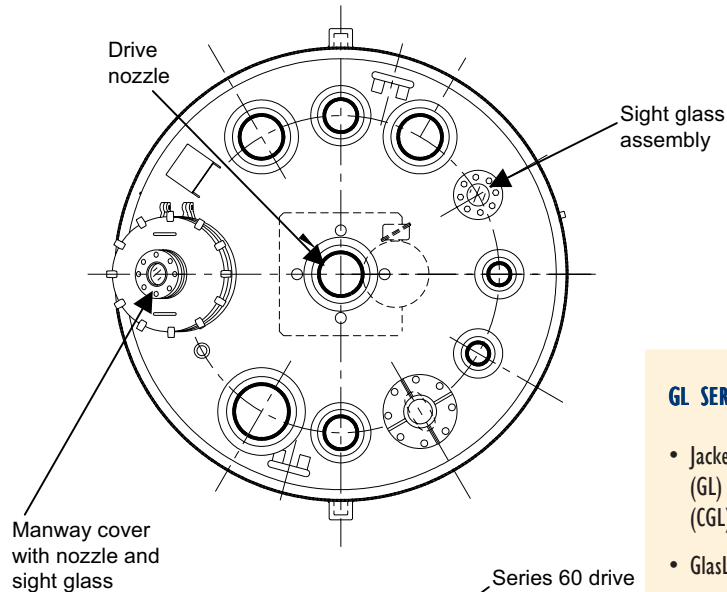
Introducing a new concept in glass-lined steel technology that makes all other reactor designs obsolete. OptiMix® optimizes the mixing performance of glass-lined reactors by integrating three baffles on the vessel wall. This innovative design greatly improves clean-in-place (CIP) efficiency, mixing and heat transfer rates.

- Three integral wall-mounted baffles offer increased mixing capabilities
- Improved CIP efficiency by eliminating the difficult to clean top head pocket at the baffle/nozzle interface
- Design enhances heat transfer, solids suspension and distribution, gas dispersion, gas flow rates, and mass transfer through improved mixing
- Eliminates need for top entry baffles, freeing up an additional nozzle for process use
- Available on CTJ and GL series reactors sizes 20 gallons and greater
- Baffles can be added to existing vessels during reglassing

\*For technical information, drawings, and specifications see individual cut sheets.

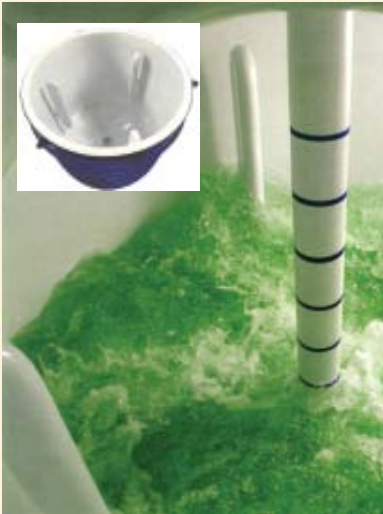
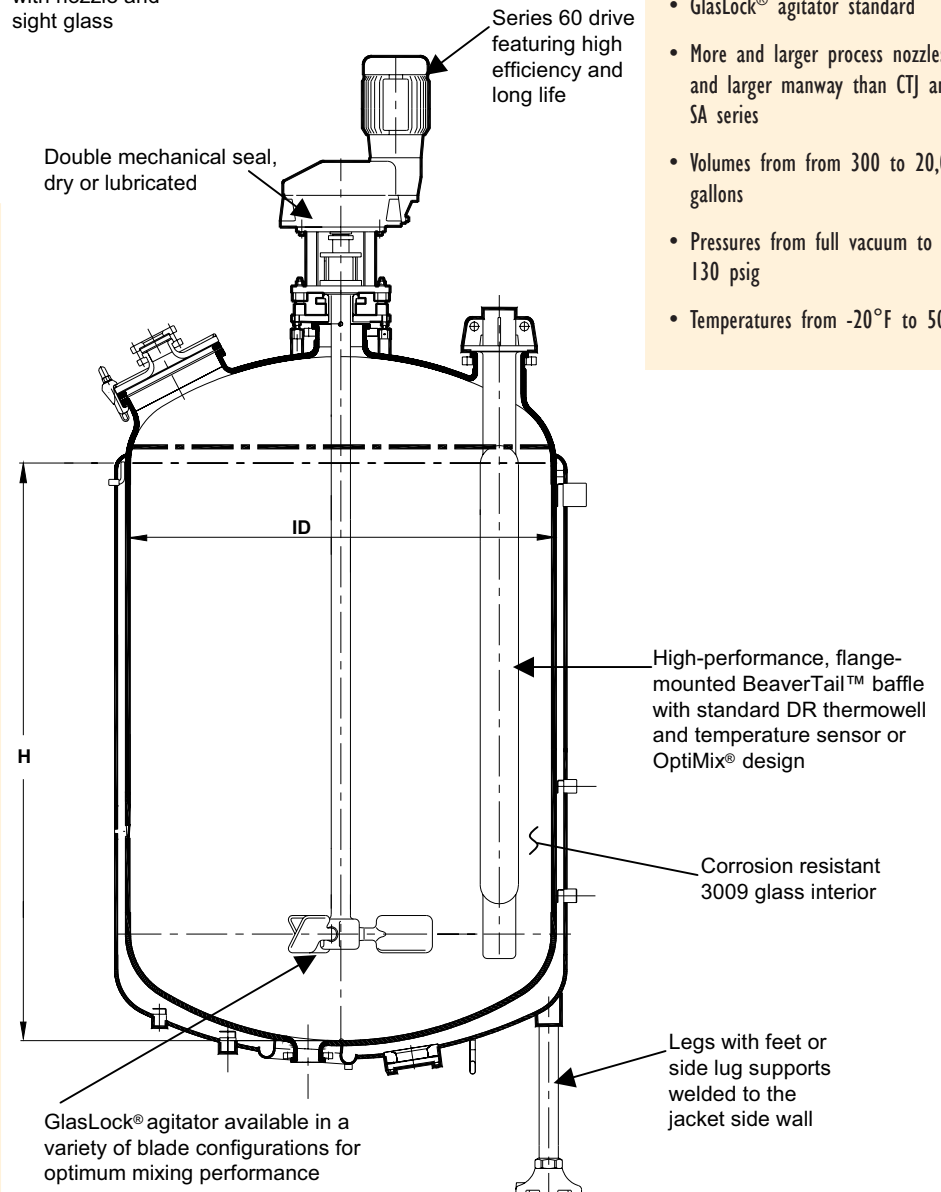
# GL reactors

Model	Dimensions		Motor (HP)
	ID (in)	H (in)	
GL-300	48	44 <sup>7</sup> / <sub>8</sub>	3
GL-500	48	69 <sup>7</sup> / <sub>8</sub>	5
GL-750	61 <sup>7</sup> / <sub>16</sub>	66 <sup>3</sup> / <sub>8</sub>	7.5
GL-1,000	61 <sup>7</sup> / <sub>16</sub>	86 <sup>3</sup> / <sub>8</sub>	10
GL-1,500	76 <sup>7</sup> / <sub>8</sub>	84 <sup>1</sup> / <sub>2</sub>	15
GL-2,000	76 <sup>7</sup> / <sub>8</sub>	103 <sup>1</sup> / <sub>2</sub>	15
GL-3,000	96 <sup>9</sup> / <sub>16</sub>	100 <sup>1</sup> / <sub>2</sub>	20
GL-4,000	96 <sup>9</sup> / <sub>16</sub>	132 <sup>1</sup> / <sub>2</sub>	20
GL-5,000	107 <sup>15</sup> / <sub>16</sub>	167 <sup>7</sup> / <sub>16</sub>	40
GL-6,000	107 <sup>15</sup> / <sub>16</sub>	160 <sup>5</sup> / <sub>8</sub>	50
GL-8,000	119 <sup>11</sup> / <sub>16</sub>	173 <sup>5</sup> / <sub>8</sub>	60
GL-10,000	131 <sup>3</sup> / <sub>8</sub>	180 <sup>11</sup> / <sub>16</sub>	60
GL-15,000	134	205	60-100
GL-20,000	142	255	60-100



## GL SERIES

- Jacket options include conventional (GL) or HemiCoil® (split-pipe coil) (CGL)
- GlasLock® agitator standard
- More and larger process nozzles and larger manway than CTJ and SA series
- Volumes from from 300 to 20,000 gallons
- Pressures from full vacuum to 130 psig
- Temperatures from -20°F to 500°F



Top: The revolutionary new OptiMix® reactor with 3 wall-mounted baffle design

Bottom: A skilled technician installing a 4,000 gallon OptiMix® reactor

See OptiMix® Bulletin for more information.



# 3009 glass • reglassing capabilities

## BENEFITS OF 3009 GLASS LINING

- Excellent resistance to corrosion
- Mechanical resistance to shocks and abrasion
- Smooth, non-stick properties
- Non-catalytic inertness
- Multipurpose material for versatility
- Meets cGMP requirements for cleaning, cleanliness and sterilization
- Customization upon specification
- Suitable for high pressure and full vacuum at elevated temperatures

## FEATURES

- Standard thickness between 40 and 90 mils
- Available in blue (3009) or white (3009U)
- Plug-free up to 4,000 gallons standard on new equipment



*Left: A skilled technician applies high performance 3009 glass formulation to the welded-up SA reactor*

*Right: A plug-free SA-8000 reactor emerges "red hot" from the large furnace*

## DE DIETRICH'S 3009 GLASS SYSTEM

- Time-tested material of construction for chemical and pharmaceutical processing where corrosion resistance, inertness and cleanability are key concerns
- State-of-the-art glassing facilities utilize electric furnaces and controlled cooling booths to reduce built-in stresses in the glass
- Quality control spark and thickness tests between coats ensure highest quality of finished lining
- The result is an impermeable, smooth coating of glass that is ideal for pharmaceutical and chemical applications

## THE REGLASSING PROCESS

- Old glass lining is removed by grit-blasting
- Steel repairs and modifications are made by welding
- Highly corrosion resistant 3009 glass is fused onto the prepared steel in powerful, computer controlled electric furnaces
- External protective coatings are applied
- The end product is indistinguishable from new vessels!

## BENEFITS OF REGLASSING

- Ideal for situations when time and cost are a primary issue
- Turnaround time is within weeks versus months to fabricate a new vessel
- Nearly 50% cost savings compared to buying a new vessel
- All reglassing is performed in the US in accordance to the NBIC code
- During reglassing, upgrades such as extra nozzles and insulation rings can be performed
- All vessels reglassed by DDPS come with the same standard warranty as new vessels



Before



After

*For more information on 3009 glass and our reglassing capabilities, refer to bulletins.*

# accessories and instrumentation

## ACCESSORIES AND INSTRUMENTATION

Whether your process application is R&D, bulk production or anything in between, DDPS has a variety of accessories and instrumentation to optimize reactor performance.

### 1. CLEAN VALVE

This self-draining bottom flush valve is designed for use where batch to batch cleanability is important. It enables functions such as sampling, gas dispersion and maintenance to be performed without the need to interrupt the process or dismantle the valve.

### 2. DIP PIPE / BAFFLE

All from one single nozzle, this innovative product functions as a baffle, dip pipe and temperature measure, freeing an additional nozzle for process piping.

### 3. TEMPERATURE SENSORS

Completely glass-lined, our temperature measuring probes have a short response time and are externally removable for reduced downtime.

### 4. QUICK VIEW PORT-GL

Our QuickViewPort-GL allows the reactor nozzle to be used as a sight glass, charge port, spray nozzle port, light port, test vessel, and for powder addition, glove box isolation, and vessel sampling.

### 5. SAFETY CLAMP

Designed for safety and efficiency, the safety clamp only unthreads so far and then stops, eliminating the potential for the clamp to separate into pieces and possibly damage the vessel.

### 6. FLEXLIGHT BUNDLE

Illuminate and view into a vessel through one port, with a cold light to eliminate product bake-on.

### 7. OVERHEADS / CONDENSERS

Overheads of glass, glass-lined steel, and alloy materials of construction are available in a variety of arrangements for process requirements.

### 8. SAMPLING BAFFLE

Improve quality control and data gathering for statistical process control with the baffle that provides several functions in one nozzle: baffling, sampling, and temperature and process measurement.

### 9. PTS

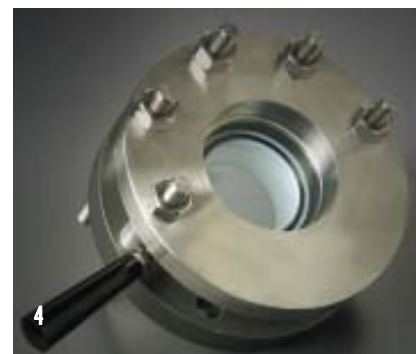
Our Powder Transfer System works to safely contain and transfer explosive, flammable, and difficult-flow powders from drums into any type of vessel.

### 10. CIP CAPABILITIES

A spray ball system, installed and certified with a Riboflavin Test, ensures thorough cleaning of the vessel walls, nozzles, agitator and baffles for batch to batch cleanability.

### 11. INSULATION AND SHEATHING

This option complements high internal reactor performance and increases reaction efficiency by helping to maintain temperatures.



For more information on any of these products, refer to individual data sheets.



# storage tanks • columns

## STORAGE TANKS

- Glastor tanks lined with 3009 glass to handle the toughest storage needs
- Superior lining for corrosive chemicals or high purity pharmaceuticals
- Cost-effective solution for chemical storage
- Available with pipe leg supports, crescent leg supports or saddle supports
- Vertical or horizontal tanks, volumes from 13 to 35,000 gallons
- Special protective coatings for exterior are available upon request



Top: A stockyard of DDPS storage tanks and reactors



Bottom: The DDPS Corpus Christi facility team in front of a 30,000 gallon tank

## COLUMNS

- Diameters from 6" to 84" and lengths up to 236"
- Jacket options include conventional or HemiCoil® jackets
- Full range of column internals can be provided
- Full vacuum and high temperature ratings
- Accessories include donut support rings, perforated plates and slotted plates
- Clamps, gaskets, split flanges and bolting all supplied with a complete column system
- Assistance on installation and packing of columns upon request
- Special conical, eccentric, stepped and angled column sections can be made to fit specific process requirements



# SA reactors • nutsche filters • SR blenders

## NUTSCHE FILTERS

- Ideal for processing pharmaceuticals, high-purity organic chemicals, dyes and precious metals
- Easy to clean glass surfaces are fire-polished to ensure highest purity and no metallic intrusion
- Top head is clamped on and completely removable for full access.
- Options include jacket, closed-welded top, hydraulic or pneumatic mechanism for lifting, etc.
- Volumes from 13 to 137 gallons
- Pressures from 38 to 85 psig and under vacuum



Left: A special portable Nutsche filter with pneumatic lowering bottom and perforated plate with casters



Center: A Nutsche filter



Right: An internal view of a Nutsche filter featuring a completely glass-lined perforated plate

## SA SERIES

- Rugged heavyweight design
- Jacket inspection/cleanout port eliminates dismantling of jacket piping and allows fast inspection and cleaning of reactor jacket
- Narrow annulus jacket spacing provides quicker heat-up and cool-down
- Standard 3000-lb. ANSI forged-steel jacket couplings are stronger, with superior corrosion allowances
- Large main opening easily accepts wide one-piece glass-lined, alloy or fluoropolymer coated agitators
- Upgrades of drives, mechanical seals, baffles and other accessories available
- Volumes from 300 to 20,000 gallons
- Pressures from full vacuum to 100 psig
- Temperatures from -20°F to 500°F

Left: The installation of an SA reactor

Right: An SA-8000 in final assembly at the De Dietrich facility in Corpus Christi, Texas



## SR DRYER/BLENDERS

- Suited for processing corrosive products for drying, mixing, or concentrating pharmaceuticals, dyes, pigments, synthetic resins, etc.
- Volumes from 30 to 1,900 gallons (12.5 to 203 ft<sup>2</sup> heating area)
- Standard working pressure of 90 psig/FV in the jacket with vacuum in inner vessel (inner vessel is stamped for 40 psig/FV)
- Steel support stand designed with an open front for operating convenience

Left: A special pharmaceutical dryer/blender featuring a unique hanging support system

Center: The internal view of the dryer/blender

Right: The standard SR design



**UNITED STATES**  
908 686 4900  
704 587 0440

**FRANCE**  
33 3 88 53 23 00

**SWITZERLAND**  
41 61 925 11 11

**GERMANY**  
49 61 31 97 04 0

**GREAT BRITAIN**  
44 1785 609 900

**IRELAND**  
353 61 366925

**SOUTH AFRICA**  
27 11 918 4131

**BELGIUM**  
32 16 40 5000

**NETHERLANDS**  
31 765 42 15 44

**SPAIN**  
34 93 29 20 520

**SINGAPORE**  
65 861 1232

**CHINA**  
86 21 5351 1817

**BRAZIL**  
55 11 6703 7380



## LOCATIONS

**244 SHEFFIELD STREET  
MOUNTAINSIDE NJ 07092  
FAX 908-889-4960**

**908-317-2585  
WWW.DDPSINC.COM  
EMAIL SALES@DDPSINC.COM**

**9110 FORSYTH PARK DRIVE  
CHARLOTTE NC 28273  
FAX 908-889 4960**

Copyright © De Dietrich Process Systems, Inc. All rights reserved.



The information contained in this brochure is believed to be reliable general guidelines for consideration of the products and services described herein.  
The information is general in nature and should not be considered applicable to any specific process or application.  
De Dietrich Process Systems, Inc. expressly disclaims any warranty, expressed or implied of fitness for any specific purpose in connection with the information contained herein.